Semi-annual Progress Report for
Alaska Regional Observation System Coordination
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This report briefly describes activities carried out in support of developing the Alaska Ocean Observing System (AOOS) and follows the format provided by the NOAA Coastal Services Center and Ocean.US.

1.0 Project Summary

AOOS is being planned and implemented through the collective efforts of a consortium of users including academia, federal and state agencies, non-governmental organizations, marine research entities, subsistence users, community representatives, and industry. The AOOS partners created an interim governance structure (with a Governance Committee) through a Memorandum of Agreement and established an AOOS Office with a Director co-located with the North Pacific Research Board in Anchorage. AOOS funds are managed by the Alaska SeaLife Center (dba the Seward Association for the Advancement of Marine Science). Since July 2003 AOOS staff and Governance Committee members have worked at a number of levels to further AOOS and the national Integrated Ocean Observing System (IOOS). This project builds on those efforts by working to achieve the following objectives:

- Objective 1. Assessing user needs, building a user network, and developing partnerships among users and data collectors and data managers.
- Objective 2. Developing a governance and administrative structure for a regional association that engages end users and coordinates with other observing efforts.
- Objective 3. Planning for and beginning implementation of a comprehensive integrated system that meets prioritized user needs.
- Objective 4. Developing a business/operations plan for the system to ensure that it will be cost-effective and sustainable.
- Objective 5. Establishing and sustaining a data management and communications subsystem.
- Objective 6. Developing education, outreach and public awareness components that will ensure the results are effectively applied to address the identified issues.

AOOS will initially represent the entire coastline and marine waters of Alaska. However, planning for the actual observing systems is being done based on separate regional efforts for the three Large Marine Ecosystems (LME) of Alaska (Gulf of Alaska, Bering Sea/Aleutian Islands and Arctic), with AOOS providing some functions on a statewide basis. Alaska has such a huge geographic scale and diversity of users that three separate entities will likely be essential for long-term success.

Developing and sustaining a program of this nature depends on sustained collaboration and coordination with a multitude of governmental (both state and federal) and non-governmental efforts and entails significant startup costs. Funding through this project is used to contribute to the costs of developing and sustaining the system including: staff, office and related support costs, contractual support especially data management, website development and scientific support, travel and meeting costs for AOOS staff and committee members, and planning workshops. Other funding and in-kind resources will continue to be provided by the key partners in this consortium.

2.0 Progress and Accomplishments

2.1 Regional Association Organization Structure

- The AOOS Governance Committee met on March 20, 2007 to review progress on the draft implementation plans (now called conceptual designs) for the three Alaska Regional Coastal Ocean Observing Systems (RCOOSs): Arctic, Bering Sea/Aleutians, and Gulf of Alaska.
- The AOOS Governance Committee has been operating under the terms of an informal Memorandum of Agreement since spring 2004. A more formal MOA has been on hold for more than a year, pending resolution of the issue of having Federal participation on regional association boards (an issue that could be resolved with language in the both the House and Senate versions of the proposed IOOS authorizing legislation). Some of the federal committee members are prepared to sign onto the more formal MOA even without legislation.
- With a new governor inaugurated in December 2006 and a new state leadership in place, McCammon met with the following state officials in April 2007 regarding state participation in AOOS: deputy chief of staff Mike Nizich, Alaska Department of Fish and Game Commissioner Denby Lloyd, Alaska Department of Environmental Conservation Larry Hartig, and Alaska Department of Natural Resources Deputy Commissioner Dick Lefebvre. The state commissioners then requested an informal discussion with federal and other AOOS board members to discuss future state participation in AOOS. This discussion occurred by teleconference on May 25. The state has indicated support for the overall program and future participation on the AOOS board.
- AOOS continues to actively participate in national IOOS planning efforts, including those of the National Federation of Regional Associations (NFRA), for which McCammon serves as chair. These activities included participation in the NFRA annual meeting in Washington D.C. March 8-9 and several meetings with the new NOAA IOOS Program Office leadership. McCammon continues to work with AOOS members and others to seek multiple and alternate sources of funding for AOOS, including the submission of numerous proposals to other funding agencies. McCammon is also a member of the national ORRAP (Ocean Research and Resources Advisory Panel), which meets 3 times a year (including February 21-22 in California). She is the interim chair of a new ORRAP ocean observing sub-panel.
- Dr. Mark Johnson, the primary contact at the University of Alaska Fairbanks, returned from sabbatical in February 2007. Dr. Orson Smith is working on Gulf of Alaska plans

under a contract with the Alaska SeaLife Center. Nora Deans, an education specialist with the Alaska SeaLife Center, is now the lead for AOOS education and outreach activities with minimal funding. A small contract has been signed for the Alaska Sea Grant Program to provide additional outreach services, especially for the Prince William Sound demonstration project.

2.2 Planning and Implementation

2.2.1 Business/operations Plan

- Components of the AOOS business/operations plan continue to be developed and are in various draft stages. The Data Management and Communications plan was finalized by the AOOS data manager and DMAC Committee and approved by the AOOS board at its March 2007 meeting. The education plan is complete. The outreach plan and implementation plans (now referred to as conceptual designs) for observing systems in Alaska's three major sub-regions: Arctic, Bering Sea/Aleutian Islands and Gulf of Alaska are still in progress. There were indications this fall/winter 2006-2007 that design guidance would be forthcoming from Ocean.US and the Coastal Services Center. No guidance has been provided in any form so we are moving forward with our own designs.
- The draft conceptual designs for the three AOOS regions will be finalized in October 2007. In concert with these, the University of Alaska will provide guidance for prioritizing phased development based on criteria (including socio-economic cost/benefits) to be determined under a contract with the Institute of Social and Economic Research (ISER).

2.2.2 Regional Coastal Ocean Observing System Priorities

- The AOOS board reviewed a revised draft AOOS Strategic Plan and the outline for the draft Conceptual Designs for the 3 AOOS regions at the AOOS board meeting March 20, 2007. The discussion was not as detailed as planned due to the need to discuss the AOOS proposal for FY 07 funding under a BAA issued by NOAA in lieu of funding through a congressionally designated appropriation. However, the board has asked for a very broad, comprehensive conceptual design that can be used by multiple parties to pursue funding from multiple sources.
- The Conceptual Designs currently under development for the three Large Marine Ecosystems will highlight the priorities for each of those systems as well as the statewide functions.

2.2.3 Regional Coastal Ocean Observing System Activities – planning and designing a comprehensive system

- **National collaborations:** AOOS continues to collaborate with other regions in helping develop the regional components of a national IOOS. These included review of the IOOS strategic plan, participation in CORE (Consortium for Ocean Research and Education) activities, review of the proposed National Water Quality Monitoring Network, participation as a member of the Ocean Research Resources Advisory Panel (ORRAP) and interim chair of a new ocean observing sub-panel, review of Hawaii's PRICIP program, participation in OAR's stakeholder roundtable (March 13),

participation in a proposal with University of Hawaii for a Center for Marine Domain Awareness, and participation at the PaCOOS board meeting in Seattle (May 16-17).

- **Statewide:** The primary statewide role for AOOS is in data management and coordination with other observing activities. AOOS continues to be involved with numerous activities statewide. AOOS and the North Pacific Research Board are partnering on a project to develop a project and metadata browser for Alaska waters called the Alaska Marine Information System. AOOS staff participated in several statewide conferences: including Alaska Marine Science Symposium (January 21-24, 2007), Alaska Forum on the Environment (February 12-15, 2007), Alaska Center for Climate Assessment and Policy (a new NOAA RISA program) stakeholders forum (February 15, 2007), Alaska Climate Impact Assessment Commission (April 12-13, 2007), two Alaska Coastal Erosion workshop (January 12 and April 11, 2007), Alaska Coastal Managers annual conference (April 25-26, 2007), USGS-USFWS sponsored forum on climate change (February 21-22, 2007), statewide Benthic Habitat Mapping conference (April 2-3, 2007), a new Alaska Hydrographic Services working group (May 3, 2007), co-sponsorship of the Great Alaska Weather Modeling Symposium in Fairbanks (March 13-14, 2007), and a North Pacific Environmental Satellite workshop (May 29-30, 2007).
- **Arctic:** A draft observing system plan is currently being developed. The Barrow web cam and sea-ice radar have been installed and are operational but will not be sustained because of our 2007-2008 funding reduction. AOOS continues to participate in other agency activities relating to the Arctic which will complement development of an observing system. Other activities include:
    - Integration of sea ice products for Alaskans through Sea Ice Working Group chaired by AOOS (Mark Johnson) and the Arctic Research Commission (Lawson Brigham). Development and publication of a brochure detailing current sea ice products for Alaska.
    - Successful proposal to NASA by Johnson at UAF to acquire radarsat S(AR) sea ice data in response to the North Slope whaling captains' workshop. Data now appearing on website.
    - Participation and coordination with the state-federal North Slope Science Initiative.
    - Participation in US Arctic Research Commission town hall meeting in Anchorage January 23, 2007.
    - Meeting with Martin Jeffries, new Arctic Observing Network director – an NSF-sponsored program – regarding collaborative activities.

- **Bering Sea/Aleutian Islands:** A draft observing system conceptual design is currently being developed. The moorings in Bering Strait and Amukta Pass have all been deployed but will not be continued into the next year due to funding reductions. Other activities include:
    - Participation in development of NPRB's proposed Bering Sea Integrated Ecosystem Research Program and NSF's BEST program.
    - Successful participation in an EPA proposal to contribute to developing a coastal climatology for communities affected by coastal erosion due to climate change impacts.

- **Gulf of Alaska:** A draft observing system plan is currently being developed which includes subregional efforts, some of which are more fully developed than others. The focus continues on the Prince William Sound demonstration project, as well as furthering the preliminary efforts in Cook Inlet, the outer Kenai Coast, Kodiak, and Southeast. Other activities include:
    - The major field trial in Prince William Sound in the planning stages with the objective of testing the utility of an observing system for oil spill response and search and rescue was delayed to at least summer 2008 due to funding uncertainties. The current funding reduction has forced us to cancel this experiment, a two-year loss in planning and progress. However, a desk top experiment is in progress.
    - Successful inclusion of Prince William Sound in a Sloan Foundation proposal for an Ocean Tracking Network, although participation will now be cancelled because of the elimination of funding for hydrographic surveys that were to be used for support.
    - As chair of the Cook Inlet Regional Citizens' Advisory Council's Environmental Monitoring Committee, McCammon continues to work on development of the Cook Inlet component of AOOS.
    - Participated in CIRCAC's Shippers Risk Assessment Forum February 21-22, 2007.
    - Participated in NPRB's planning for a GOA integrated research program: January 21, 2007 and February 27-28, 2007. Working with NPRB to ensure coordinated programs. Both workshops have been used to further develop the GOA conceptual design.

2.2.4 Data Management and Communications Subsystem

- Four small working groups of AOOS DMAC Committee members and non-members were formed after the October 2006 DMAC meeting to deal with ongoing issues that could not be solved during the meeting and will report progress at the next DMAC Committee meeting.
- AOOS is now participating in the NOAA MADIS program. This enables us to get QA/QC'd data whereas we have been focused on collection of raw data.
- AOOS is producing pre-operational atmospheric forecasts four times a day using the Weather Research Forecasting (WRF) system. Model output is available for Southeast, Gulf of Alaska and Prince William Sound. A large Alaskan grid is produced by the Arctic Region Super Computer every 12 hours and covers the remaining coastal waters.
- The first five year plan for data management was reviewed by the DMAC Committee and approved by the AOOS board at its March 20 meeting. It has received "high marks" from the national DMAC committee.
- DMAC manager sent electronic mail to NODC seeking an informal or formal arrangement of data transfer to the archive. This will ensure safety of unique datasets

obtained by AOOS. This will also satisfy the IOOS Archive component for AOOS data management.

2.3. Stakeholder and user needs identification and engagement

- Formal and informal contacts continue to be made with potential AOOS users/stakeholders in order to identify user needs and interests in AOOS. These efforts however, continue to be scaled back because sufficient IOOS funding has still not been included in federal budgets to support significant regional observing systems. We continue to be in a period of "expectation management." Our primary strategy continues to be looking for non-IOOS funds to start up programs while waiting for future IOOS funding.
- The following presentations and briefings were given during this reporting period:
    - Participation in the U.S. Arctic Research Commission town hall meeting January 23, 2006.
    - Presentation at the RISA stakeholders workshop, February 15, 2007.
    - Presentation at the GOA climate change workshop, Juneau, February 27-28, 2007.
    - Presentation at the Great Alaska Weather Modeling Symposium, March 13-14, 2007.
    - Presentation at the Coastal Erosion Workshop, April 11, 2007.
    - Testimony to the Alaska Legislature's Alaska Climate Impact Commission, April 12-13, 2007.
    - Presentation at the Alaska Coastal Managers' annual conference, April 25-26, 2007.
    - Participation in NOAA's Hydrographic Services Working Group, May 3, 2007.
    - Participation in a State research teleconference May 3, 2007.
    - Briefings to Mike Nizich, Deputy Chief of Staff to Governor Sarah Palin; Alaska Department of Fish and Game Commissioner Denby Lloyd; Alaska Department of Environmental Conservation Commissioner Larry Hartig; and Alaska Department of Natural Resources Deputy Commissioner Dick Lefebvre.

2.3.1. Education, outreach and public awareness activities

- The AOOS website continues to be updated with new data sets and information products, including:
    - Cruise data from Prince William Sound (2007)
    - Additional biological datasets from Arctic Ocean Diversity (ArcOD) group
    - MODIS Aqua Chlorophyll and SST data are now available.
    - HF Radar Site in Cook Inlet now operating. Data being forwarded to the NDBC HF Radar server.
- McCammon is the lead PI for a proposal to NSF for an Alaskan COSEE (Centers for Ocean Sciences Education Excellence). AOOS has partnered with the Alaska SeaLife Center, the Alaska Sea Grant Program, and the University of Alaska on this proposal.
- McCammon participated in the Ocean Research and Resources Advisory Panel meeting in California in February and has organized an ocean observing sub-panel.

- AOOS co-sponsored and participated in a Communicating Marine Science workshop as part of the 2007 Alaska Marine Science Symposium (which AOOS also co-sponsored).
- McCammon met with the Seattle Aquarium education department in March to discuss future collaborations on education and outreach efforts with the Alaska cruise industry. John Binkley, executive director of the newly formed Alaska Cruise Association, met with the AOOS board in March regarding possible monitoring and education and outreach collaborations.
- AOOS developed two new brochures: one on the Prince William Sound demonstration project, and the other on current sea ice products available to various stakeholder groups.

3.0 Scope of Work (Plans for the next year)

3.1. Stakeholder/user needs identification and engagement new

- Continue with approach to three Alaska regions and sub-regions based on Large Marine Ecosystem (LME) concept.
- Continue to work with other collaborative efforts in Alaska such as the Alaska RISA (Alaska Center for Climate Assessment and Policy), the North Slope Science Initiative, the Exxon Valdez Oil Spill Trustee Council, the North Pacific Research Board, and the Alaska Marine Ecosystem Forum.
- Reassess the makeup of the AOOS Governance Committee and development of stakeholder advisory committees to ensure adequate stakeholder representation and communication.
- Work with MMS, federal and state regulatory agencies, and oil and gas industry on plans relating to offshore oil and gas development in the Bering, Beaufort, and Chukchi Seas.
- Organize meeting of all sea ice researchers in fall 2007.
- Work with UAF remote sensing group on developing products for Alaska users.
- Work with Alaska Sea Grant to further user product development from Prince William Sound pilot project.
- Continue to participate in coastal erosion and coastal climatology planning efforts with the National Weather Service, NOAA climate office, and others.
- Participate in NOAA's regional collaboration team and Hydrographic Services working group.
- Continue activities with CIRCAC Environmental Monitoring Committee.

3.2. Governance and administrative structure

- Reconstitute Governance Options Subcommittee with state participation. Complete revisions to new MOA to address any state concerns. Meet with EPA and FEMA regarding AOOS membership.
- With state involvement, we can now proceed with these activities: develop set of operating procedures for AOOS board and committees to use; consider need for 501 (c) (3) corporation, and if so, conduct legal work; and consider approach to stakeholder/user committees based on LMEs along with committee mission and terms of reference.

3.3. Business/operations plan

- All of the components described above (Governance, DMAC, education & outreach, stakeholder engagement, and coastal observing system activities) continue to progress. The AOOS business/operations plan will integrate these efforts.
- A draft plan is now expected to be released for review and comment in fall 2007. Two workshops will be held to assist with finalizing this plan: one in August to finalize the conceptual designs from a technical/scientific basis and the other in September to develop a prioritization recommendation to be used in phasing in the regional designs. The planning efforts for the Arctic and Bering Sea depended on the participation of Dr. Mark Johnson, with funding from other sources. That participation is now uncertain due to reductions in the other NOAA grant for AOOS.

3.4. DMAC activities

- DMAC has been working with a staff of three FTEs plus a partial satellite and HF Radar manager and a grad student. The satellite/HF radar position and grad student have been eliminated due to funding cuts, and the 3 full-time positions have only 10.5 months of salary for the next year. A new position has begun to address acquisition of fisheries data and develop the Alaska Marine Information System (a joint initiative with the North Pacific Research Board and UAF), but future funding of that is uncertain. These reductions in the DMAC staff, plus the elimination of all equipment and travel funds, will seriously compromise the ability of DMAC to grow in the next year.

- The next DMAC Committee meeting will focus on metadata and data requirements to data providers.

- IOOS activities
    - Continued participation with IOOS ET Metadata and Archive teams – but likely to be limited due to funding constraints. AOOS Data management is seeking contact with NODC to work on the Archive component.
    - Completed recent data transport project with NOAA CSC DTL. Awaiting next project. NOAA CSC requested updates to the CIR.
    - AOOS an active participant in the IOOS Observation Registry. We are waiting for the next phase of this project.

- DMAC staff will continue data management collaboration with AEFF, NMFS, PMEL and ArcOD for integration of datasets between AOOS and agencies as staff resources are available.

3.5. Education, outreach and public awareness activities

- The majority of funding for education and outreach was included in the AOOS COTS grant, and due to funding reductions, those elements have been cancelled.
- Continue to work with Alaska Sea Grant Marine Advisory Program to develop outreach & public awareness plan, as part of AOOS business/implementation plan.
- Implement Alaska COSEE proposal if funded.
- Continue website development including
    - Integration of ShoreZone contingent on implementation of WMS services on the ArcIMS server for ShoreZone;

    - Redesign of home pages and custom pages in progress; and
    - PWS 2007 FE data portal should have all requested datasets available to researchers.
- Work with Alaska Sea Grant MAP agent for PWS to hold stakeholder focus groups to improve PWS web page and user products.
- Initiate AOOS newsletter.
- Develop brochures on 3 regional observing systems: Bering Sea, Arctic, and GOA.

3.6. Regional Coastal Ocean Observing System Implementation Activities

- Funding reductions in the AOOS RCOOS grant will require major reductions in current implementation activities. The program has been cut in half, losing all programmatic elements outside of the PWS model development and DMAC activities. This will result in a loss to the program of more than a year's work and seriously compromise our ability to keep momentum going in Alaska.
- Statewide: Revised strategic plan will go out for additional review in fall 2007 with the three draft subregional or RCOOS implementation plans now under development. The primary focus of AOOS continues to be development of its DMAC sub-system.
- Arctic RCOOS: AOOS is collaborating with a number of IPY efforts, including NSF's new Arctic Observing Network and a proposed Arctic GOOS. AOOS will collaborate with Dr. Tom Weingartner on a recently funded NOPP proposal providing ocean circulation monitoring using buoys and HF radar. These will likely be minimum efforts due to funding and staffing issues.
- Bering Sea/Aleutian Islands RCOOS: Continue to participate with NOAA, NPRB, USGS, and NSF on BSAI integrated research plans and proposals. Meet with state-federal Marine Ecosystem Forum to determine information needs for Aleutian ecosystem management pilot project. Work with the Bristol Bay and Norton Sound CDQ groups on future workshops on needs for coastal ocean observing in these areas. These will also likely to be minimum efforts due to funding and staffing issues.
- Gulf of Alaska RCOOS: Building on 2 workshops held in 2007, continue work on draft implementation plan for greater Gulf of Alaska. Continue development of models, but eliminate all other components of PWS pilot project due to funding reductions. Delay plans to begin implementing a Cook Inlet observing system plan. Continue with planning efforts for Southeast and Kodiak/Shelikof sub-regions.

4.0 Leadership Personnel

There are some changes in key scientific or management personnel. Because of the reduction of funding for the NOAA AOOS COTS grant, funds for Dr. Carl Schoch (lead PI for the PWS demonstration project) and Dr. Orson Smith, a professor of engineering with the University of Alaska Anchorage assisting with GOA coordination, have been eliminated. In addition, a grad student and a part-time position in the DMAC group have been eliminated. Dr. Mark Johnson manages the Data Management and analysis Group at UAF, and his salary is fully paid by the University of Alaska Fairbanks as part of its support of the AOOS. It was expected that much of Dr. Johnson's salary would be covered in the FY07 COTS grant. We don't know if UAF will continue their current level of support given these funding reductions.

5.0 Budget Analysis

All financial reports are up to date and have been submitted on time.

Because much of the AOOS funding for website development, education and outreach, participation in national activities, and coordination efforts was being provided under a separate NOAA COTS grant which was recently reduced by 53%, the budget for the third year of this planning grant is being reviewed. If major modifications are needed, they will be requested shortly.